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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,830	08/21/2002	Lih-Ren Shiue	JCLA9625	9790

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EXAMINER

CANTELMO, GREGG

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/064,830	SHIUE ET AL.	
	Examiner	Art Unit	
	Gregg Cantelmo	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 1, 2005 has been entered.

Response to Amendment

1. In response to the compliant amendment received November 14, 2005:
 - a. Claims 1-13 are pending;
 - b. The prior art rejection of record is withdrawn since it is further considered that the controller 18 of Thomas et al. does not function in the manner required in claim 1.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3 and 6-13 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the use of supercapacitors, ultracapacitors or double layer capacitors, does not reasonably provide enablement for all capacitors. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to

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make the invention commensurate in scope with these claims. It appears that the invention is disclosed with the incorporation of more specific supercapacitors, ultracapacitors or double layer capacitors and not all capacitors as the claim encompasses.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2 and 4-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear how complimentary charge and discharge between a capacitor and primary battery is achieved when primary batteries are not rechargeable batteries. Thus the mode of complimentary charging of the battery by the capacitor is not understood.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas et al, of record, in view of JP 02-273036 (JP '036).

Thomas et al. disclose an energy storage system which includes a first power source, which may be a 13 are battery, particularly a zinc-air battery or a lithium polymer battery. (See column 2, lines 23-27.) The system further includes a second power source within the same housing. The second power source may be a capacitor. (See Fig. 3 and column 4 lines 37-65.) Electronic circuitry connected to the two power sources is adapted to condition the output of the two power sources. (See column 3, lines 12-22.) The circuitry is considered to control complementary charge and complementary discharge between the battery element and the capacitor element. With regards to claim 6, both the capacitor

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and the battery disclosed by Thomas et al. may be the same, for example, alkaline. (See column 2, lines 36 and 52.).

Thomas fails to teach or suggest a controller which functions in the manner recited in claim 1.

JP '036 discloses providing a big capacity capacitor 2, capable of accumulating more amount of energy than a secondary battery 1, is connected in parallel to the secondary battery 1 through a reverse current precluding diode 4 and a current limiting circuit 5, connected in parallel to the diode 4, while the terminals of the capacitor 2 are utilized as external terminals. The current limiting circuit 5 limits a current higher than a charging current determined in the specification of the secondary battery 1. Both terminals of the capacitor 2 are connected to an external power source to charge the capacitor with a big current while the Zener diode of a monitor circuit 3 is put ON when the voltage of the Zener diode 31 has arrived at the Zener voltage thereof whereby a voltage is generated in the diode 32 and charging is stopped. Subsequently, the secondary battery 1 is charged with a current, limited by the current limiting circuit 5 based on the specification of the secondary battery and conducted through the capacitor 2. According to this method, the overcharging of the secondary battery may be prevented even if the big current charging of a short time is effected and the long life of the battery may be kept (abstract).

The motivation for using the arrangement of JP '036 is that it provides an arrangement which permits internal charging of the battery via the big capacitor

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while also providing protection circuitry to the device to prevent overcharging of the battery.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Thomas et al. by using the arrangement of JP '036 since it would have provided an arrangement which permitted internal charging of the battery via the big capacitor while also having provided protection circuitry to the device to prevent overcharging of the battery.

Response to Arguments

6. Applicant's arguments with respect to claims 1-3 and 6 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

7. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas et al. in view of JP '036 as applied to claim 1 above and further in view of Lian et al., US Patent 5,563,765, of record.

The teachings of claim 1 have been discussed above and are incorporated herein.

The differences between claims 4 and 5 and Thomas et al. are that Thomas et al. does not disclose the particular capacitors of claims 4 and 5.

However it is noted that JP '036 teaches of using "big capacitors" to provide for recharging of the battery provided in the hybrid power source (abstract). Thus the combination of Thomas et al. in view JP '036 provides

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reasonable motivation towards using big capacitors, e.g. supercapacitors, ultracapacitors or double-layer capacitors.

Lian et al. disclose capacitors having a charge 2 See column 5, lines 37-45.) The capacitors were tested using a density of 0.2 F/cm . 31% KOH electrolyte. (See column 4, lines 4-9.) Because of the relatively high charge density of the capacitors disclosed by Lian et al., one of ordinary skill in the art would consider these to be "super capacitors".

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Thomas et al. in view of JP '036 to have employed the supercapacitor of Lian et al, since it would have provided a big capacitor which accumulated more amount of energy than a secondary battery so that the capacitor can effectively charge the battery.

It would have been obvious to one of ordinary skill in the art to use the super capacitors suggested by Lian et al. in the energy storage system disclosed by Thomas et al. in view of JP '036 since it would have provided a powerful capacitor which accumulated more amount of energy than a secondary battery so that the capacitor can effectively charge the battery.

Response to Arguments

8. Applicant's arguments with respect to claims 4 and 5 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

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9. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas et al. in view of JP '036 and further in view of Narang et al., US Patent 5,548,055, of record.

The teachings of claim 1 have been discussed above and are incorporated herein.

The differences between claims 7 and 8 and Thomas et al. are that Thomas et al. does not disclose of capacitors with polymer electrolyte or organic solvent in the electrolyte.

Narang et al. disclose electrolytes useable with super capacitors. (Column 10, lines 28-33.) The electrolytes contain siloxane and polyvinylidene fluoride polymers and plasticizer. (See Fig. 1.) The plasticizer may be lower alkyl carbonates, which would include diethyl and dimethyl carbonates. (See column 20, lines 50-53.) The electrolytes are taught as providing high ambient temperature ionic conductivity and excellent physical and mechanical attributes. (Column 5, lines 1-7.)

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Thomas et al. in view of JP '036 to use the electrolyte disclosed by Narang et al. in both the capacitor and battery of the Thomas et al. invention in order to achieve high ionic conductivity and good mechanical properties.

Response to Arguments

Applicant's arguments with respect to claims 7 and 8 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

10. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas et al, of record in view of JP '036 as applied to claim 1, and further in view of U.S. Patent No. 6,074,775 (Garstein).

Thomas et al. disclose applicants' invention essentially as claimed, with the exception that Thomas et al. do not specifically disclose the specifics of charge and discharge control recited in applicant's claims. However, Thomas et al. disclose a variety of power output conditioning circuitry is possible in their system. (See column 3, lines 11-22.) Such elements being shown throughout Garstein. Thus, one of ordinary skill in the art would appreciate the power conditioning circuitry disclosed by Thomas et al. would include the systems as claimed by applicants in instant claims 9-13.


Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (571) 272-1283. The examiner can normally be reached on Monday to Thursday from 9 a.m. to 6 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. FAXES received after 4 p.m. will not be processed until the following business day. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained

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from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gregg Cantelmo
Primary Examiner
Art Unit 1745

gc 
January 26, 2006